

REMARKS/ARGUMENTS

Claims 1-17 were pending in the application. By this amendment, claims 1, 4, 6-9 and 12-16 are being amended to improve their form, and new claims 18-23 are being added, to advance the prosecution of the application. The Abstract is being amended as required. No new matter is involved.

The indication in paragraph 1 on page 2 of the Office Action that the drawings are informal has been duly noted. Applicants will file formal drawings upon allowance of the application.

In paragraph 2 on page 2 of the Office Action, the Abstract is objected to as exceeding 150 words in length. In response, Applicants are rewriting the abstract so as to reduce the length thereof to less than 150 words. As so amended, the abstract should now be in acceptable form.

In paragraph 5 on page 3 of the Office Action, claims 1-4, 6-13 and 15-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,454,055 of Kragl et al. Kragl et al. is said to describe the claimed subject matter except for an optical integrated circuit as such. However, Kragl et al. discloses a photodetector, and it is stated that it would be obvious to one of ordinary skill in the art that the optical component of Kragl et al. could be an optical integrated circuit inasmuch as they are well known in the art. It is further stated that while Kragl et al. does not describe the package body, the package lid and the optical fibers being solder sealed, Kragl et al discloses adhesive bonding and solder is a well-known type of adhesive, so that it would have been obvious to one of ordinary skill in the art to use solder instead of the adhesive described by Kragl et al. In paragraph 11 on page 4 of the Office Action, claims 5 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kragl et al. and U.S. Patent 6,250,819 of Porte et al. Porte et al. is cited for its showing of arrays of optical fibers in multiple grooves. According to the Office Action, it would have been obvious to one of ordinary skill in the art to use the arrays and grooves of Porte et al. in Kragl et al. These rejections

are respectfully traversed, particularly in view of the claims as amended herein and the new claims presented.

Briefly stated, the present invention provides an opto-electronic package and method of making the same which provides for ease of assembling the package in conjunction with one or more optical fibers. More specifically, the optical fibers can be laid into and sealed to an opposite body and lid of the package, in one operation. Furthermore, the sealing of the opposite portions of the package and the optical fibers therein can provide a highly desirable hermetic seal, particularly where soldering is used to perform the sealing operation.

In opto-electronic packages according to the invention, the interface of the package body and lid lies within a common plane with the optical fibers to facilitate the assembly and sealing of the package. An optical device such as an optical I.C. may be mounted within the package and coupled to electrical contacts extending into the package. The optical fibers are laid in and disposed within opposite feedthrough portions in the body and lid which form end pipes. The optical fibers may comprise one or more arrays of such fibers. Plural arrays of the fibers may extend into the package from one or more sides thereof.

In methods of making an opto-electronic package according to the invention, optical fibers are laid into one or more fiber feedthrough paths in the package body, and a package lid having fiber feedthrough portions disposed at the fiber feedthrough paths is mounted on the package body to form end pipes around the fiber arrays. The package lid is then sealed to the package body, and the optical fibers are sealed to the body and lid.

In Kragl et al., an optical component in the form of a photodetector 29 is mounted between a cover plate 27 and a bottom plate 21 in conjunction with a glass fiber 34. A primary object of such structure is described as the ease of adjustment and alignment of the fiber with the photodetector 29. Porte et al. shows arrays of optical fibers extending into a device, as mentioned in the Office Action.

Thus, whereas Kragl et al. and Porte et al. describe the construction of optical devices, as such, the present invention relates to formation of a sealed package in

conjunction with optical fibers. The sealed package may include an optical device, such as the device shown in Kragl et al. for example. However, the presence of such optical device is incidental to the primary feature in accordance with the invention which is a sealed package which includes optical fibers. The package includes opposite body and lid portions which interface at a common plane with the fibers, so that the entire assembly is easily completed and sealed in a single step operation. The fibers are laid in feedthrough paths, and the lid is mounted over the body and the fibers. End pipes are thereby formed around the fibers. The body and lid may be sealed to each other and to the fibers such as by soldering, to form a hermetically sealed enclosure.

The courtesy of a recent telephone discussion with one of the inventors, Benne Velsher, by the Examiner is gratefully acknowledged. This amendment is being made in accordance with that discussion.

As amended, claim 1 defines an opto-electronic package which includes an enclosed package with a plurality of electrical contacts extending therein and coupled to an optical device mounted within the package. An optical fiber extends "through at least one peripheral portion of the package to the optical device along a common plane". The package is comprised of "opposite portions joined together at an interface substantially at the common plane and forming a hermetic enclosure". As described above, the cited art describes optical devices themselves rather than packages sealed with fibers, which may include such devices. Moreover, the devices of the prior art are not hermetically sealed in the manner of the opto-electronic packages of the present invention.

Therefore, claim 1 as amended is submitted to clearly distinguish patentably over the prior art. Similar comments apply to claims 2-8 and new claims 18-21 which depend, directly or indirectly, from claim 1 and which contain all of the limitations thereof.

Claim 9 as amended defines an opto-electronic package in which electrical leads extend through a package body to wire bond pads therein and a fiber feedthrough path extends through the package body from at least one side thereof.

An optical device ^{not in Claim} mounted within the package body is coupled to the wire bond pads. In accordance with claim 9, the package thereof includes "at least one fiber array extending into the package body from at least one side thereof along the fiber feedthrough path", and a package lid is mounted on and encloses the package body with the lid "having at least one feedthrough portion disposed at the fiber feedthrough path". Again, the description of the optical devices in the cited references neither discloses nor suggests a sealed package in accordance with the invention in which an optical device may form a part but primarily a body and lid are sealed together in conjunction with optical fibers as facilitated by the design of the body and lid and the portions thereof for laying the fibers into the body.

Therefore, claim 9 as amended is submitted to clearly distinguish patentably over the art. Similar comments apply to claims 10-14 and new claims 22 and 23, which depend, directly or indirectly, from and contain all of the limitations of claim 9.

Claim 15 as amended defines a method of making an opto-electronic package in which a package body is provided having fiber feedthrough paths on at least one side thereof. Optical fibers are laid in the feedthrough paths of the package body. A package lid is provided having fiber feedthrough portions disposed at the fiber feedthrough paths. The package lid is mounted on the package body so that end pipes are formed around the fiber arrays. The package lid is sealed to the package body and the optical fibers are sealed to the package body and the package lid to form a hermetic enclosure. Such method in accordance with the invention is neither disclosed nor suggested by the prior art, for the reasons described above.

Therefore, claim 15 is submitted to clearly distinguish patentably over the art. Claims 16 and 17 depend from and further define claim 15 so that such claims are also submitted to distinguish patentably over the art.

In conclusion, claims 1-23 are submitted to clearly distinguish patentably over the prior art for the reasons discussed above. Therefore, reconsideration and allowance are respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 337-6846 to discuss the steps necessary for placing the application in condition for allowance.

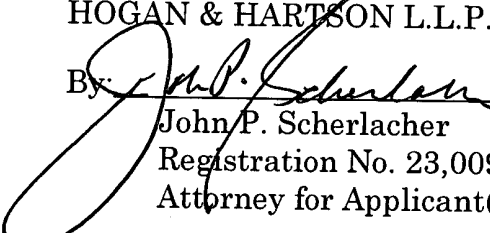
If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,

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